

ABSTRACT

Sub
P.1.7 Context-aware computing systems and methods are described. In particular
embodiments, location aware systems and methods are described. In the described
embodiments, hierarchical tree structures are utilized to ascertain a device context
or location. The tree structures can be stored on or accessible to mobile or
stationary computing devices so that the devices can determine their own
particular context or location. In one embodiment, one of the tree structures
comprises a Master World tree structure that contains nodes that represent
geographical divisions of the Earth. Another of the tree structures can comprise a
so-called Secondary World that contains nodes that represent physical or logical
entities that are organization or company specific views of the world. A
computing device can automatically determine its context or location by
ascertaining a node on one or more of the tree structures and then traversing the
tree structure to ascertain the complete context. A unique device architecture is
described that permits context aware computing. The device architecture
comprises a context service module, a common interface, and one or more context
providers. The context providers provide information, through the common
interface, that pertains to the context of a device, and the context service module
processes the information to device the device's context. An application program
interface (API)/events layer is provided through which various applications can
call the device to ascertain the device's location so that location dependent goods
or services can be rendered. A privacy manager is also provided in some
embodiments to enforce privacy thereby protecting the granularity of the location
information that is provided to the applications. In addition, unique location

